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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,875	09/29/2000	Bruce Randall Cook	ECB-0004	3306

7590 10/23/2002

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EXAMINER

GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/676,875

Applicant(s)

COOK ET AL.

Examiner

Walter D. Griffin

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 4, 2002 has been entered.

Response to Amendment

The claim rejections described in paper no. 4 have been withdrawn in view of the amendment filed on July 22, 2002. The arguments concerning these rejections are moot and will not be addressed.

Claim Objections

Claims 5, 6, and 14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form. The limitation in claim 5 that the feedstream is a hydrodesulfurized feedstream is already contained in claim 1. Claim 1 recites that the feed is previously hydrodesulfurized. Therefore, claim 1 also includes the hydrodesulfurization step that is contained in claims 6 and 14.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatanaka et al. (5,906,730) in view of Harandi (5,554,275).

The Hatanaka reference discloses a multi-step hydrodesulfurization process in which the hydrocarbon feed (e.g., gasoline) is hydrodesulfurized in a first step at conditions that minimize hydrogenation of olefins and without substantially changing the octane number of the feed. The product from the first step contains thiols (i.e., mercaptans) that are produced in the first step.

Art Unit: 1764

This product from the first step is then further hydrodesulfurized in a second step. A third hydrodesulfurization step may also be performed. See col. 3, lines 45-67 and col. 4, lines 21-27 and lines 52-58.

The Hatanaka reference does not disclose the contacting of the feed with a catalyst in the presence of a stripping gas as the second desulfurization step.

The Harandi reference discloses a process for desulfurizing an olefinic hydrocarbon feed such as an FCC crackate by passing a liquid hydrocarbon into a stripper having a bed of hydrodesulfurization catalyst particles and contacting the liquid with the catalyst bed while passing a stripping gas (i.e., hydrogen) into the stripper. This FCC crackate is equivalent to a naphtha. The catalyst may be a Group VI and VIII metal catalyst such as cobalt-molybdenum on a support such as alumina. This catalyst would necessarily be sulfided through its use with a sulfur-containing hydrocarbon feed. See col. 1, lines 7-62, col. 2, lines 19-24, and col. 3, lines 12-37.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Hatanaka by utilizing the desulfurization process of Harandi as the second desulfurization step because separate desulfurization and stripping steps will not be required.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of Hatanaka and Harandi by utilizing a stripping gas having the composition as in claim 4 because any concentration of hydrogen would be expected to promote the hydrodesulfurization reactions.

Art Unit: 1764

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of Hatanaka and Harandi by utilizing a concurrent system because as long as there is contact between the hydrogen, feed, and catalyst, regardless of the direction of contacting, an effective process would be expected to result.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of Hatanaka and Harandi by utilizing feeds to the second desulfurization step having sulfur concentrations as in claims 12 and 13 because the desulfurization would be expected to be effective in reducing sulfur concentrations regardless of the initial sulfur concentration.

Conclusion

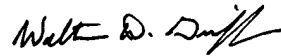
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Clark reference (US 6,409,913) discloses a naphtha hydrodesulfurization process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Art Unit: 1764

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Walter D. Griffin
Primary Examiner
Art Unit 1764

WG

October 15, 2002